- WASTE MANAGEMENT
  (SECTION 5.14 FROM 99-AFC-7)

5.14 WASTE MANAGEMENT

This section presents a discussion of the evaluation of potential impacts from non-hazardous and hazardous wastes material generation associated with the Pastoria Energy Facility (PEF) project, including transmission lines and pipelines.

5.14.1 Affected Environment

The following sections identify and discuss the capacity of available disposal facilities for solid and liquid non-hazardous and hazardous wastes that will be generated by the PEF project. A description of the wastes generated by the construction and operation of the facility is presented in Sections 3.4.9 and 3.4.10, summarized in Tables 3.4.9-1 and 3.4.9-2, and discussed further in the following subsections.

5.14.1.1 Non-Hazardous Waste Disposal

5.14.1.1.1 Solid Waste. Existing non-hazardous solid waste disposal facilities in the general area (within 70 miles) of the plant site that will accept non-hazardous wastes generated by the project are listed in Table 5.14-1. Each of the landfills is located in Kern County. The five Class III landfills listed in Table 5.14-1 accept non-hazardous wastes and inert solid wastes, including construction/demolition waste. Liquid wastes are not accepted by these landfills. Industrial process solid waste is accepted by these landfills on a case-by-case basis. No enforcement actions that would jeopardize the continued operations of these facilities have been identified.

There are several soil treatment and soil recycling facilities operating in southern California that accept petroleum hydrocarbon contaminated soil that is classified by the generator as a non-hazardous waste, as defined by the Resource Conservation and Recovery Act (RCRA), and the California Code of Regulations Title 22 (CCR Title 22). Acceptable concentrations for individual constituents in the soil are established by each facility based on their treatment capabilities. Soil treatment and recycling facilities located in southern California include:

- American Remedial Technologies (thermal treatment facility, Lynwood, California)
- Candelaria Environmental Company (biotreatment facility, Anza, California)
- Gibson Oil & Refining Co., Inc. (asphalt recycling and production facility, Bakersfield, California

- Pomona Valley Environmental, Inc. (asphalt recycling and production facility, Riverside, California)

- Soil Wash Technologies, Inc. (mechanical and chemical soil scrubbing and/or chemical fixation facility)

- TPS Technologies, Inc. (thermal desorbtion facility, Adelanto, California).

5.14.1.1.2 Liquid Waste. Process wastewater will either be injected into a suitable well system or will be further treated in an onsite zero discharge system. If the well injection method is used, wastewater will be discharged to both existing and newly constructed injection wells. Each of the wells used for injection would be located on Tejon Ranch property, approximately 1.7 miles north-northwest of the site. If a zero discharge method is used, onsite equipment would be installed to support this system, as shown on Figure 3.1-1. Sanitary wastewater from the proposed generating facility site will be conveyed to an onsite leaching field by buried sewer piping.

5.14.1.2 Hazardous Waste Disposal

There are three major Class I landfills in California. These three landfills are:

- Laidlaw Environmental Landfill in Kern County on Lokern Road between State Highways 33 and 58. The permitted capacity of this landfill is 13.25 million cubic yards with approximately 11.05 million cubic yards of remaining airspace capacity. The remaining life of this landfill is at least 30 years (Nelson, 1999). The EPA Identification Number for this facility is CAD980675276.

- Chemical Waste Management Landfill in Kings County on State Highway 41 about two miles west of Interstate 5. The Class I portion of this landfill has approximately 8.0 million cubic yards of remaining capacity out of a permitted capacity of 10.7 million cubic yards. The remaining life of this landfill is approximately 30 years (Yarbrough, 1998). The EPA Identification Number for this facility is CAT000646117.

- Safety-Kleen Landfill in Imperial County (formally Laidlaw Environmental Landfill) has an estimated remaining capacity of approximately 2.9 million cubic yards. The remaining life of this landfill is at least 50 years, until 2050 (Sonneborn, 1999). The EPA Identification Number for this facility is CAD000633164.

There are several waste oil haulers/recyclers that operate in Kern County including:

- Cole's Services, Bakersfield, California
- Crane's Waste Oil, Inc., Weldon, California
- Kern Environmental Service (KES) and KVS Transportation, Inc., Bakersfield, California
- MP Environmental Services, Inc., Bakersfield, California
- West Coast Oil Filter Recycling, Bakersfield, California.

URS Greiner Woodward Clyde conducted a Phase I Environmental Site Assessment (ESA) for the Pastoria Power Project in April 1999, using methods prescribed by the American Society for Testing and Materials (ASTM). The Phase I ESA was provided to the CEC under separate cover and is incorporated into this AFC by reference. The Phase I ESA indicates that contaminated soil is not expected to be present on the PEF project site where the power generation facilities will be constructed. However, petroleum hydrocarbon-impacted soil associated with oil-field operations located approximately 1 mile north of the power plant site may be present in surface and subsurface soil located adjacent to the proposed wastewater discharge pipeline and natural gas pipeline linear alternatives.

5.14.2 Environmental Consequences

The analysis of impacts related to waste management from the PEF project is based on significance criteria summarized as follows:

- Non-hazardous solid wastes must not significantly alter available landfill, recycling or treatment program capacities.

- Non-hazardous liquid wastes must not cause a publicly owned treatment system to violate any applicable waste discharge requirements.

- Hazardous solid wastes must not significantly alter available Class I landfill capacity.

- The facility must comply with all applicable laws regarding the handling of hazardous wastes.

Additionally, according to the California Environmental Quality Act, Appendix G Guidelines, a project has a significant impact when it:

- Breaches standards relating to solid waste or litter control
- Creates a potential public health hazard or involves materials which pose a hazard, or
- Results in a need for new systems or substantial alterations to waste disposal facilities.

The following sections describe the wastes that are expected to be generated during the construction and operation of the PEF project, including transmission lines and pipelines, and how non-hazardous solid waste, wastewater, and hazardous solid and liquid wastes will be disposed.

5.14.2.1 Non-Hazardous Solid Waste

5.14.2.1.1 Construction. During construction of the generating facility and transmission, water, natural gas, and potential wastewater linear facilities, up to 1,000 tons of non-hazardous solid waste will be generated. The types of wastes generated during construction include debris and other materials requiring removal during site grading and excavation, excess concrete, lumber, scrap metal, insulation, packaging, and empty non-hazardous chemical containers (see Table 3.4.9-1).

Paper, wood, glass, and plastic waste will be generated from packing materials, excess lumber, insulation, and empty non-hazardous chemical containers. These wastes will be segregated, where practical, for recycling. Non-recyclable wastes will be placed in a covered dumpster and removed on a regular basis by a certified waste handling contractor for disposal at a Class III landfill. Excess concrete will also be disposed of at a Class III landfill.

Waste metal generated during construction will include steel from welding/cutting operations, packing materials, and empty non-hazardous chemical containers. Aluminum wastes from packing materials and electrical wiring waste will also be generated. Metal wastes will be separated, where practical, for salvaging/recycling. Non-recyclable metal waste will be disposed of at a Class III landfill.

5.14.2.1.2 Operation. Non-hazardous solid wastes generated during operation of the generating plant will include routine maintenance solid waste, office wastes, CTG used air filters, cooling tower basin sludge, and make-up water solids (see Table 3.4.9-2). Salt Cake will also be generated if the zero discharge option is used for disposal of process wastewater.

The primary source of non-hazardous solid waste requiring offsite disposal will be the silt (suspended solids) present in the raw water supplied from the California Aqueduct. The silt will be removed by the raw water treatment system by a combination of clarification, flocculation, and filtration. A solid waste product (filter cake) will be discharged from the filter press system at an estimated rate of 2 to 3 cubic yards per day. The filter cake is classified as non-hazardous and could be collected in drip proof containers and disposed of in an approved manner.

Cooling tower basin sludge will be generated at an estimated rate of 2 tons per year. This non-hazardous solid waste will also be disposed of offsite at an authorized non-hazardous waste disposal facility.

Office paper, newsprint, aluminum cans, plastic containers and other non-hazardous solid waste material will be recycled to the extent practical and the remainder removed on a regular basis by a certified waste handling contractor for disposal at a Class III landfill (most likely Arvin or Bena Sanitary Landfills). CTG used air filters will be recycled.

It is anticipated that disposal of solid waste from the generating plant will represent only a nominal (less than 0.01%) increase relative to current disposal volumes at the Arvin and Bena Sanitary Landfills and a negligible increase as compared to the combined current disposal volumes at the five landfills in the vicinity of the generating plant site (see Table 5.14-1). These increases will not significantly alter available landfill capacity and can be considered insignificant.

5.14.2.2 Wastewater

5.14.2.2.1 Construction. During construction, wastewater generated at the construction sites will include sanitary wastes and may include storm water runoff and equipment wash water. Construction-related sanitary wastes, collected in portable self-contained chemical toilets, will be periodically pumped and transported by licensed contractors to a sanitary wastewater treatment facility. Storm water runoff will be managed in accordance with state and local regulatory requirements and the storm water NPDES permit requirements applicable to the project, as described in Section 5.5, Water Resources. Equipment wash water will be contained at specifically designated wash areas and transported to a wastewater treatment facility via a licensed vacuum truck hauler.

5.14.2.2.2 Operation. The wastewater collection system provides for the collection, treatment, and disposal of all wastewater produced from the generating equipment and facilities. Drains for areas potentially contaminated by oil or chemicals will be contained and routed through an oil-water separator prior to discharge. Sanitary drains will be collected by a separate sanitary waste system and discharged to an onsite leaching field.

Process wastewater will consist of cooling tower blowdown, demineralizer system backwash, HRSG blowdown, and inlet evaporative cooler blowdown (see Figure B-1). Cooling tower blowdown is expected to average about 585 gpm. The combined waste discharge is expected to occur at a rate of 760 gpm (1,094,400 gpd). The anticipated process wastewater characteristics are shown in Tables 3.4.8-4 and 3.4.8-5.

Process wastewater will either be injected into a suitable well system or will be further treated in an onsite zero discharge system. If the well injection method is used, wastewater will be discharged to both existing and newly constructed injection wells. Each of the wells used for injection would be located on Tejon Ranch property, approximately one and one-half miles north-northwest of the site. Wells will be classified as Class I injection wells and will be permitted in accordance with Federal and California EPA and California Department of Conservation, Division of Oil, Gas and Geothermal regulations. Periodic sampling of the wastewater discharge will be performed to confirm that its composition is within permit limits.

Existing well log data was used to support the analysis of the subsurface geology and hydrology and its ability to accept the wastewater stream. An analysis is being prepared to assess the feasibility and applicability of the proposed injection program.

If process wastewater is further treated in an onsite zero discharge system, a large portion of wastewater will be recycled to the plant's cooling water system. This will reduce the plant's water consumption by approximately five to ten percent. The zero discharge system will generate approximately 2-4 cubic yards per day of non-hazardous salt cake which will be disposed of at an offsite non-hazardous waste disposal facility or will be sold commercially.

5.14.2.3 Hazardous Wastes

5.14.2.3.1 Generating Plant Site Preparation. Based on the Phase I ESA (URS Greiner Woodward Clyde, 1999) there are no known tanks or other evidence that would indicate surface or subsurface contamination on the generating plant site where the facilities will be constructed. However, the Phase I ESA indicates that petroleum hydrocarbon-impacted soil associated with oil-field operations may be present in surface and subsurface soil located adjacent to the proposed wastewater discharge and natural gas pipeline linear alignment alternatives. Surface staining was noted along these alignments during the site reconnaissance. The Phase I ESA also indicates that the general project area has a history of agricultural usage and that herbicides, pesticides, and defoliants may have been applied to crops grown in the vicinity of the generating project area. However, the type and extent of herbicide, pesticide and defoliant usage is unknown.

In the event that contaminated soil is encountered during construction, the soil will be segregated, sampled, and analyzed in order to evaluate appropriate disposal/treatment options. If the soil is classified as hazardous (according to RCRA and California Code of Regulations [CCR] Title 22), the Kern County Environmental Health Department (Kern County EHD) will be notified and the soil will be hauled to a Class I landfill or other appropriate soil treatment and recycling facility, if required. The Kern County EHD will also be notified if wells or underground storage facilities are discovered during construction of the

project. Subsequent removal of such facilities, including potential remediation, will be conducted in accordance with CCR Title 22 and the California Health and Safety Code. Additionally, if oil wells are discovered and require abandonment, the wells will be abandoned in accordance with the requirements of the California Department of Conservation, Division of Oil, Gas and Geothermal Resources. If petroleum hydrocarbon-impacted soil is encountered, but can be classified as non-hazardous, as defined by RCRA and CCR Title 22, it may be disposed of at an appropriate offsite soil treatment or recycling facility or be used as pipeline backfill contingent upon the quality of the soil, the concentrations of constituents present, and other potential factors.

In Kern County, petroleum hydrocarbon-impacted soil, related to former or current oil-field production, is frequently disposed/recycled at an asphalt batch plant (Von Sydow, 1998). However, such soil often remains in-place unless the soil is considered hazardous or construction activities necessitate offsite disposal (Von Sydow, 1998). According to the California Environmental Protection Agency, Department of Toxics Substances Control (DTSC), soil recycling and treatment capacity is sufficient for petroleum hydrocarbon-impacted soil generated within California (Radimsky, 1998). Non-hazardous soil, which is not accepted at commercial treatment or recycling facilities, may be disposed of at a Class III landfill.

5.14.2.3.2 Construction. Small quantities of hazardous wastes and used oil will likely be generated over the course of construction. These may include waste paint, spent solvents, spent welding materials, spent batteries, and chelant-type cleaning solution from HRSG and preboiler cleaning (see Table 3.4.9-1). All hazardous wastes generated during construction will be handled and disposed of in accordance with applicable LORS (Section 7). Hazardous wastes will be either recycled or disposed of at a licensed hazardous waste treatment or disposal facility, as appropriate. Managed and disposed of properly, these wastes will not cause significant environmental or health and safety impacts.

Typically, the construction contractor will be considered the generator of hazardous waste produced during facility construction and will be responsible for compliance with all applicable federal and state regulations regarding hazardous waste, including licensing, personnel training, accumulation limits, reporting requirements, and record keeping. Hazardous waste will be collected in hazardous waste accumulation containers near the point of generation. The accumulation containers will be hauled to the construction contractor's 90-day hazardous waste storage area and will be disposed of by a licensed hazardous waste disposal service.

5.14.2.3.3 Operation. A description of the hazardous wastes to be generated during operations is presented in Section 3.4.9, summarized in Table 3.4.9-2, and described below:

- Used Oil: Approximately 1,800 gallons per year of used oil will be generated. Used oil, waste solvents, and oily wastes generated during operation will be recycled. Drummed used oil and used oil from the oil-water separator will be collected for recycling by a licensed waste oil recycler. Used oil filters will also be recycled. Filters contaminated with heavy metals or other constituents that do not meet the requirements of CCR Title 22 66266.130 will be disposed of at a Class I hazardous waste landfill. Oily rags will be generated as a normal part of maintenance activities and will be collected near the point of generation in a hazardous waste accumulation container. Oil absorbent mats will be disposed of at a Class III landfill after squeezing the mats with a roller and recycling the used oil removed from the mats. Oil absorbent, if any, will be collected and disposed of in a hazardous waste landfill. Oily rags will be sent to an authorized rag service for cleaning.

- Selective Catalytic Reduction (SCR) and CO Catalyst (Alternate): Spent catalyst (approximately 16,000 cubic feet every 3 to 4 years) will be returned to the manufacturer for metals reclamation and/or disposal. These wastes are not required with the use of XONON^{TM} emission control technology.

- Cleaning Solutions: Periodic turbine wash will produce contaminated wash water effluent. This waste will be temporarily stored onsite in portable tanks. The effluent will be analyzed to determine its characteristics (i.e., hazardous or non-hazardous) and will be transported for disposal by a licensed waste disposal contractor to the appropriate offsite treatment or disposal facility depending on analytical results. HRSG cleaning solutions are typically collected and disposed of offsite by the licensed contractor conducting the cleaning.

The hazardous waste quantities generated by the energy plant will be minimal and the facility will likely be classified as a Small Quantity Generator. A maximum of 1,800 gallons per year (approximately 5 tons) of used oil is expected to be generated by the plant and will be transported by a licensed transporter to existing oil petroleum recycling facilities in California, which have an estimated capacity of 187,263 tons per year (State of California Department of Toxic Substances Control [DTSC], 1994*).* Hazardous waste capacity assurance documents for California have not been prepared since 1993 because DTSC and EPA believe that the hazardous waste treatment capacity in the State is more than sufficient for hazardous wastes generated within the state (Radimsky, 1998). Hazardous waste generated during operation of the generating plant will not have significant impacts upon available hazardous waste treatment and disposal capacity.

5.14.2.4 Cumulative Impacts

The PEF project site is located on undeveloped land. The site vicinity has a history of agricultural, oil exploration, and gravel mining usage. The generating plant site is located adjacent to an active gravel quarrying operation. An abandoned gravel quarry is located approximately one-half mile south of the plant site and oil fields are located approximately one mile north of the plant site. No known urban development is presently planned within five miles of the plant site. Based on information obtained regarding waste disposal and recycling options and capacity in California and Kern County, the additional non-hazardous solid waste, wastewater, and hazardous waste expected to be generated by the PEF project, including transmission lines and pipelines, will not significantly impact available landfill, hazardous waste treatment, or wastewater discharge capacity.

5.14.3 Mitigation Measures

5.14.3.1 Non-Hazardous Solid Waste

Non-hazardous solid wastes generated from the facility will be minimal and will not require further mitigation. Non-hazardous solid wastes will either be recycled (paper, glass, metals, etc.) or will most likely be disposed of at the Arvin Sanitary Landfill in Kern County, California.

5.14.3.2 Wastewater

Generation of non-hazardous wastewater at the facility will be minimized as practical by standard water conservation measures. If an injection well system is used, the wells will be classified as Class I injection wells and will be permitted in accordance with Federal and California EPA, and California Department of Conservation, Division of Oil, Gas and Geothermal regulations. The permit will outline permissible discharge levels and characteristics for the wastewater discharge to injection well system, including a sampling schedule, if necessary. No further mitigation is proposed.

5.14.3.3 Hazardous Waste

WM-1. Prior to the initiation of the project construction phase, construction employees will receive hazardous waste related training focusing on recognition of potential contaminated soil (e.g., that may be encountered during excavation for pipeline trenches located near oil field operations) and contingency procedures to be followed to protect worker safety and public health.

WM-2. A detailed waste management plan for all waste generated during construction will be prepared at least 60 days prior to rough grading to assure proper storage, labeling, packaging, record keeping, manifesting, minimization, and disposal of all hazardous materials and waste. A separate management plan for operation will be prepared. The construction management plan will be completed at least 60 days prior to rough grading and the operational plan will be completed at least 60 days prior to start-up. The waste management plan(s) will include:

- A description of each hazardous waste stream
- Handling, transport, treatment, and disposal procedures for each waste
- Preparedness, prevention, contingency, and emergency procedures
- Personnel training.

WM-3. Prior to commencement of construction, application will be made to the DTSC for an EPA identification number. Application will also be made to the Kern County EHD for a hazardous waste generator license. The facility will not treat, store or dispose of hazardous waste in a manner that will cause the facility to be characterized as a treatment, storage or disposal facility (TSDF) which would be required to obtain a TSDF permit.

WM-4. All hazardous wastes will be stored onsite for fewer than 90 days (or other accumulation periods as allowed by CCR, Title 22 § 66262.34 for hazardous waste generators) and will be managed in accordance with state and Federal hazardous waste generator requirements. Hazardous wastes, as well as hazardous materials that are spilled or otherwise become unsuitable for use, will be stored in an appropriately segregated hazardous waste storage area surrounded by a containment structure to control leaks and spills. The containment area will be sized to hold a volume equal to at least 110 percent of the tank (or container) capacity. The outdoor containment structure will also have a volume equal to at least the capacity of the tank (or container) plus the volume of rainfall from a 50-year, 24-hour storm event. The hazardous waste storage areas will be inspected and maintained at least weekly, as required.

WM-5. Hazardous wastes will be collected by a licensed hazardous waste hauler and disposed of at a hazardous waste facility. Hazardous wastes will be transported offsite using a hazardous waste manifest. Copies of manifests, reports, waste analysis, exception reports, land disposal restriction notices/certifications, destruction certifications, etc., will be kept onsite and accessible for inspection for three years.

WM-6. Spill control and management procedures will be included in the Hazardous Materials Plan developed for the PEF project prior to commercial operation. The purpose of the spill control and management procedures is to avoid accidental mixing of incompatible chemicals and spills during transfer of chemicals. The design of spill control and management procedures will include the containment, collection, and treatment systems. The spill response procedures are further discussed in Section 5.15, Hazardous Materials Handling.

WM-7. Facility employees will receive hazardous materials training as required by the Occupational Safety and Health Administration Hazard Communication Standard. Additionally, employees will be trained in hazardous waste procedures, spill contingencies, and waste minimization procedures in accordance with CCR Title 22. Hazardous waste training will include, but not be limited to, the following subjects:

- Hazardous waste characteristics
- Use and management of containers
- Waste packing
- Marking and labeling
- Accumulation/storage areas
- Inspections
- Preparedness and prevention
- Emergency equipment
- Contingency plan
- Emergency response procedures
- Hazardous waste manifesting
- Spill response and containment
- Waste minimization.

WM-8. Procedures to minimize hazardous waste generation will be established. Employees will be trained in procedures to reduce the volume of hazardous waste generated at the PEF. The procurement of hazardous materials will be controlled to minimize surplus materials onsite and to prevent unused materials from becoming "off-spec". Non-hazardous materials will be used in lieu of hazardous materials whenever possible. Hazardous materials will be reused whenever possible. Hazardous wastes will be recycled whenever possible.

5.14.3.4 Monitoring Program

Environmental impacts related to waste management issues caused by construction and operation of the PEF project, including transmission lines and pipelines, are expected to be

minimal. Therefore, extensive monitoring programs are not required. Monitoring of generated waste volumes and characteristics during construction and operation of the proposed PEF project will be conducted in accordance with monitoring and reporting requirements stipulated in appropriate regulatory permits to be obtained for construction and operation.

Assuming that the mitigation and monitoring measures described above are implemented, no significant unavoidable adverse impacts are anticipated due to the proposed project.

5.14.4 LORS Compliance

The PEF project, including transmission lines and pipelines, will operate in accordance with all laws, ordinances, regulations, and standards applicable to waste management for the energy facility. These LORS are discussed in Section 7**.**

5.14.5 References

Kidwell, G. 1999. Kern County Department of Waste Management. Personal communication with K. Shirley (URS Greiner Woodward Clyde).

Nelson, D. 1999. Laidlaw Environmental Services. Personal communication with K. Shirley (URS Greiner Woodward Clyde).

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State of California Department of Toxic Substances Control. 1994. Phase I Capacity Assurance Submittal to the United States Environmental Protection Agency. May 16, 1994.

URS Greiner Woodward Clyde. 1999. Phase I Environmental Site Assessment. Pastoria Power Project, Kern County, California.

Von Sydow, L. 1998. Kern County Environmental Health Department. Personal communication with K. Shirley (URS Greiner Woodward Clyde).

Yarbrough, T. 1998. Chemical Waste Management. Personal communication with K. Shirley (URS Greiner Woodward Clyde).

TABLE 5.14-1

NON-HAZARDOUS SOLID WASTE DISPOSAL SITES[1]

Disposal Site Name	Location in San Diego County	Current Annual Usage (tons)	Remaining Capacity (tons)	Anticipated Year of Closure	Approximate Distance from Site (miles)
Arvin	1 mile south of Bear Mountain Boulevard on Wheeler Ridge Road	96,204	289,681[2]	2001[2]	25
Bena (Phase I)	1 mile east on Bena Road off Tower Line Road at Highway 58	297,278	1,852,093	2004	45
Taft	1 mile north of Highway 119 on Elk Hills Road	24,142	3,715,687	2152	50
Shafter-Wasco	1 mile north of Lerdo Highway on Scofield Avenue	132,638	3,701,684	2020	60
Lost Hills	1 mile north of Highway 46 on Holloway Road	1,164	487,950	2022	70
Total		**551,426**	**10,047,095**	--	--

(1) Source: Landfill Profile Sheets (dated January 1, 1999) provided by Gabriele Kidwell of Kern County Waste Management Department.

(2) Remaining capacity and anticipated year of closure is for existing refuse footprint only. The Kern County Waste Management Department's decision regarding use of permitted unused area (PUA) is pending. If PUA is used, the total remaining capacity is 1,232,699 tons and the anticipated closure date is 2009.